FIG. 1

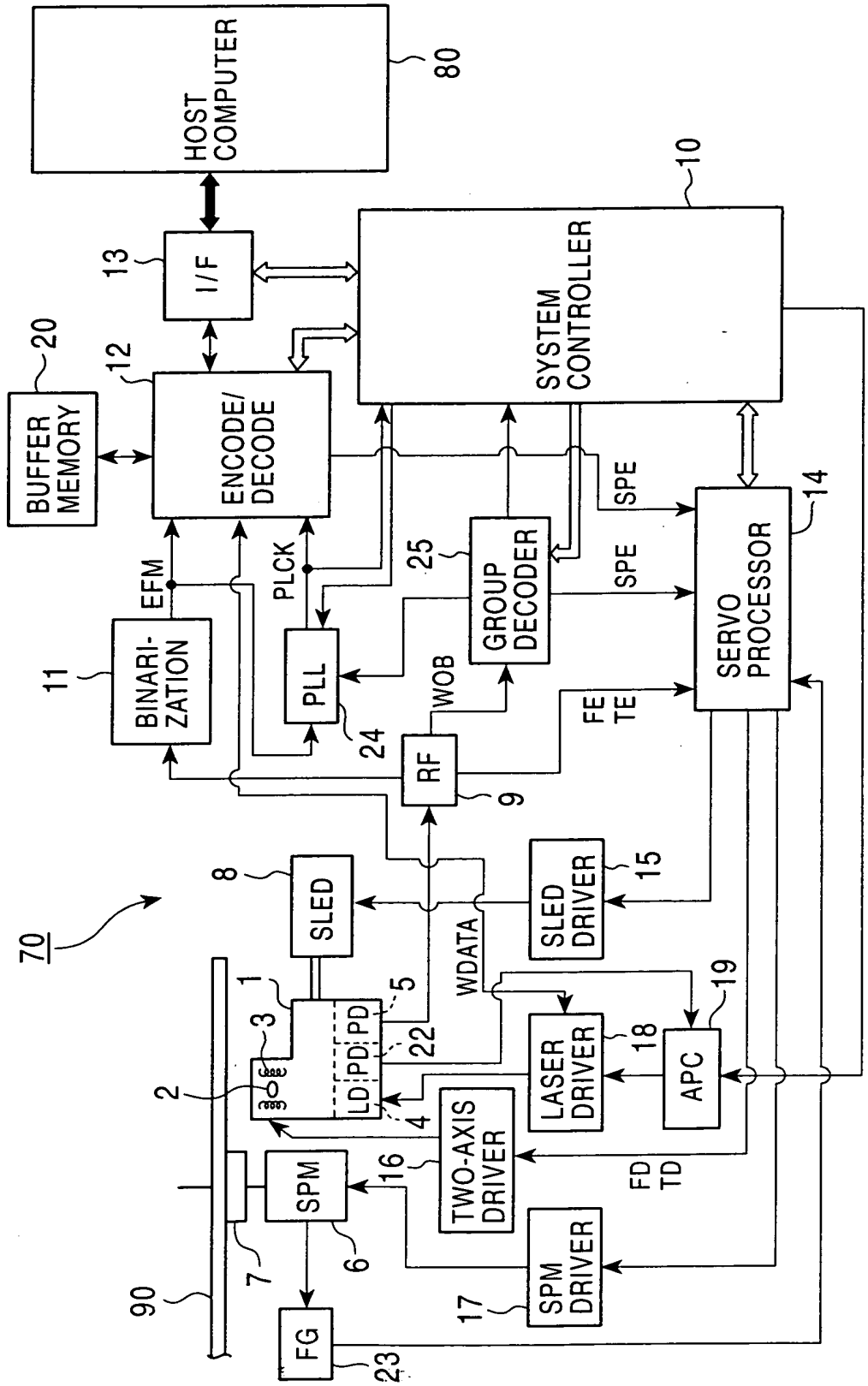
HOST COMPUTER
80
SYSTEM CONTROLLER
10
I/F
13
BUFFER MEMORY
20
ENCODE/ DECODE
12
SPE
SERVO PROCESSOR
14
GROUP DECODER
25
EFM
PLCK
BINARI-ZATION
11
PLL
24
WOB
RF
9
FE
TE
70
SLED
8
SLED DRIVER
15
WDATA
LD
PD
PD
1
3
5
22
2
4
LASER DRIVER
18
APC
19
TWO-AXIS DRIVER
16
FD
TD
SPM
7
6
SPM DRIVER
17
90
FG
23

FIG. 2

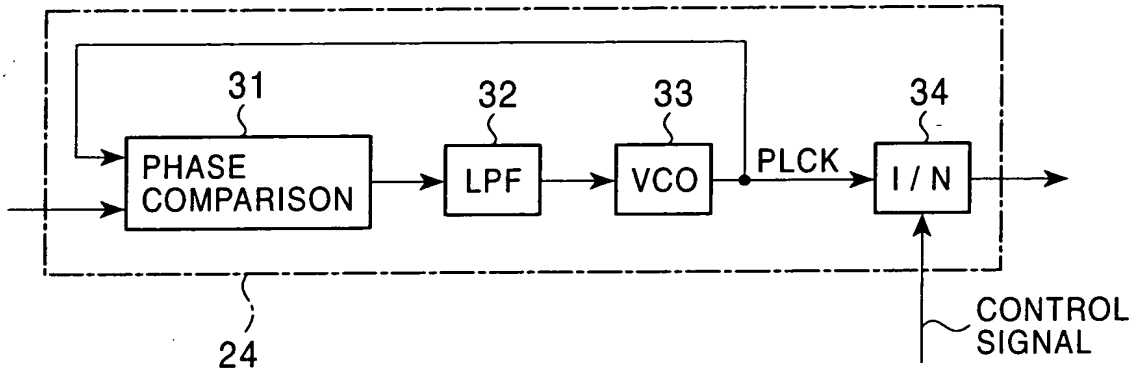

FIG. 3A

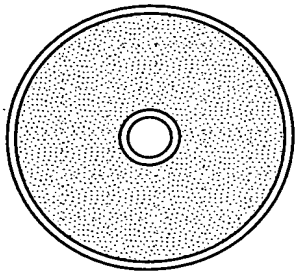

FIG. 3B

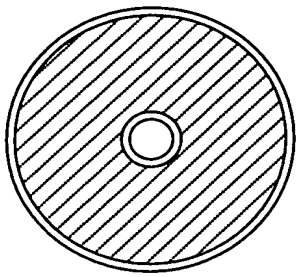

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FIG. 4

	STSNDARD DENSITY	HIGH DENSITY
USER DATA CAPACITY	650 Mbytes (120 mm) 195 Mbytes (80 mm)	1.30 Gbytes (120 mm) 0.40 Gbytes (80 mm)
PROGRAM AREA START POSITION (RADIUS)	50 mm	48 mm
CENTER HOLE DIAMETER	15 mm	15 mm
DISK THICKNESS	1.2 mm	1.2 mm
TRACK PITCH	1.6 μm	1.10 μm
SCANNING SPEED	1.2～1.4 m/s	0.90 m/s
LASER WAVELENGHT	780 nm	780 nm
MODULATION METHOD	0.45	0.55
NA	EFM	EFM
ERROR-CORRECTION METHOD	CIRC4	CIRC7
CHANNEL BIT RATE	4.3218 Mbps	4.3218 Mbps

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FIG. 5

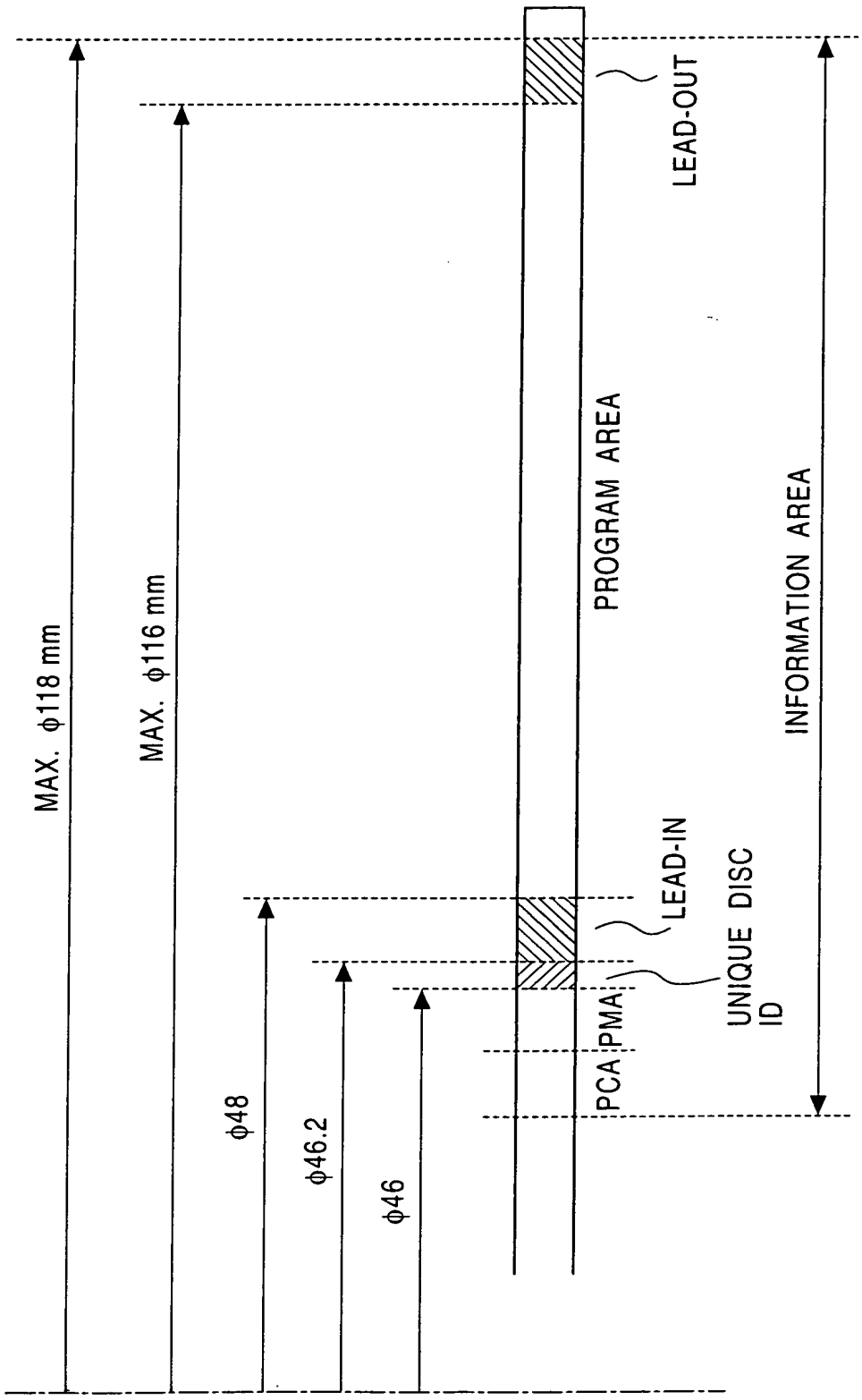
MAX. φ118 mm
MAX. φ116 mm
φ48
φ46.2
φ46
LEAD-OUT
PROGRAM AREA
INFORMATION AREA
LEAD-IN
UNIQUE DISC ID
PCA
PMA

FIG. 6

COUNTRY CODE	2 BYTES
DISC MANUFACTURE DATE	1 BYTE
DISC MANUFACTURE NAME	2 BYTES
DISC ID	8 BYTES
WRITER MANUFACTURE NAME	1 BYTE
WRITER SERIAL NUMBER	2 BYTES
WRITER MODEL NAME	1 BYTE
RESERVE	⋮

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FIG. 7

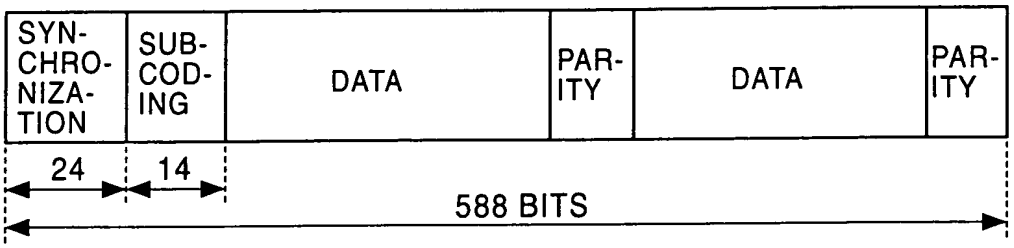


FIG. 8A

FRAME	SUBCODING FRAME							
98n + 1	SYNCHRONIZATION PATTERN							
98n + 2	SYNCRHONIZATION PATTERN							
98n + 3	P1	Q1	R1	S1	T1	U1	V1	W1
98n + 4	P2	Q2	R2	S2	T2	U2	V2	W2
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
98n + 97	P95	Q95	R95	S95	T95	U95	V95	W95
98n + 98	P96	Q96	R96	S96	T96	U96	V96	W96
98(n+1) + 1								

FIG. 8B

Q1~Q4	Q5~Q8	Q9 ~ Q80	Q81~Q96
CONTROL	ADR	SUB-Q DATA	CRC

FIG. 9

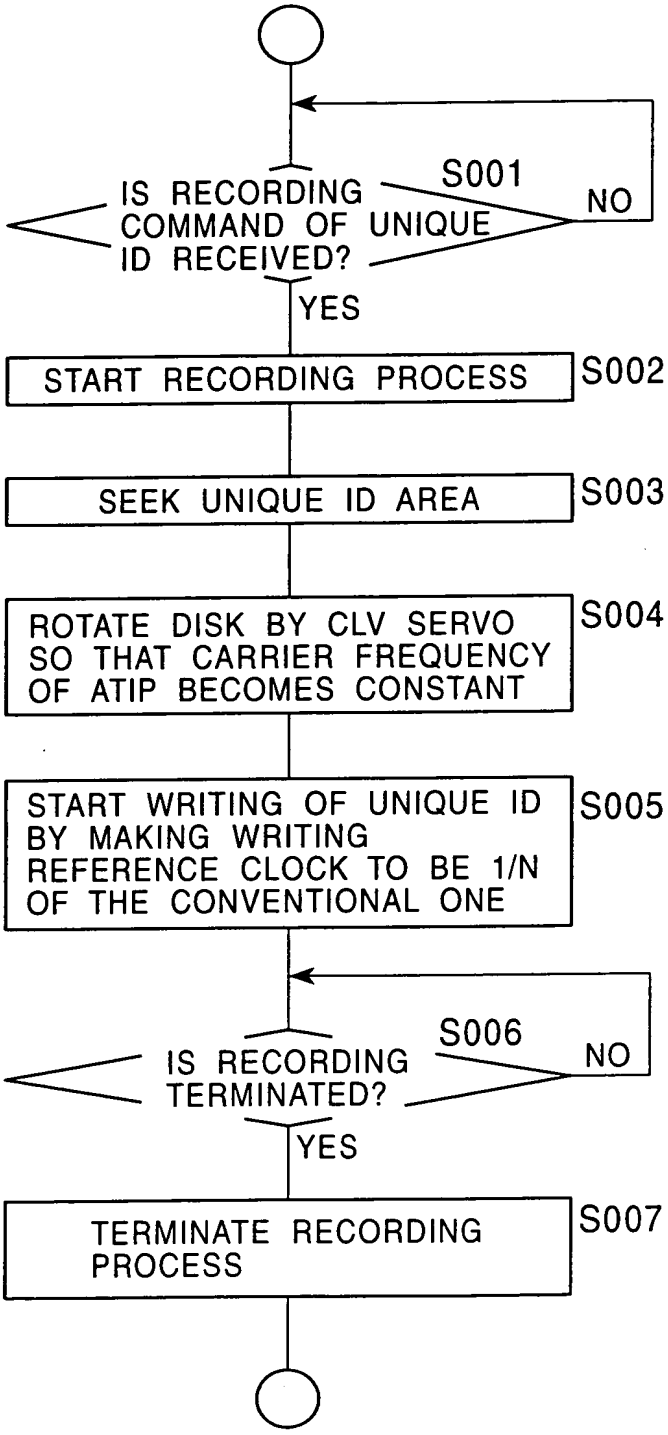

IS RECORDING COMMAND OF UNIQUE ID RECEIVED?
S001
NO
YES
START RECORDING PROCESS
S002
SEEK UNIQUE ID AREA
S003
ROTATE DISK BY CLV SERVO SO THAT CARRIER FREQUENCY OF ATIP BECOMES CONSTANT
S004
START WRITING OF UNIQUE ID BY MAKING WRITING REFERENCE CLOCK TO BE 1/N OF THE CONVENTIONAL ONE
S005
IS RECORDING TERMINATED?
S006
NO
YES
TERMINATE RECORDING PROCESS
S007

FIG. 10

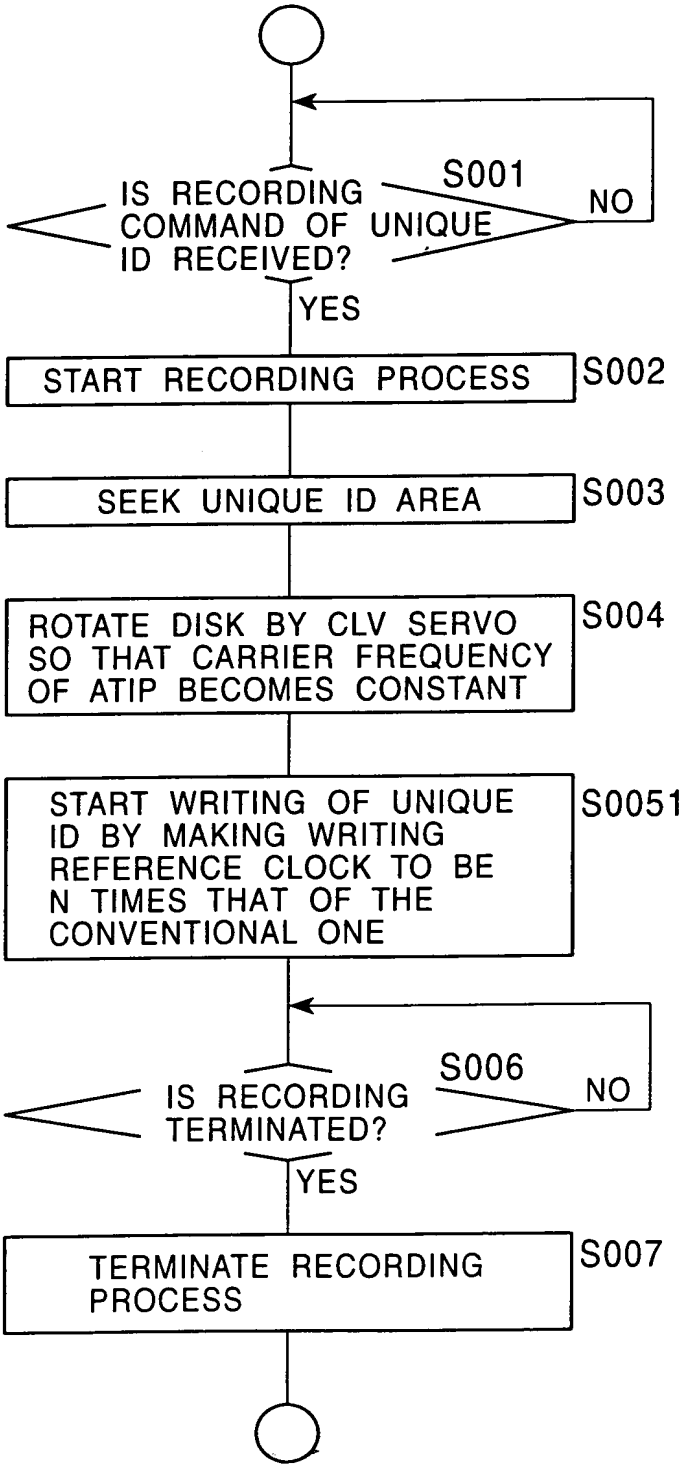

IS RECORDING COMMAND OF UNIQUE ID RECEIVED?
S001
NO
YES
START RECORDING PROCESS
S002
SEEK UNIQUE ID AREA
S003
ROTATE DISK BY CLV SERVO SO THAT CARRIER FREQUENCY OF ATIP BECOMES CONSTANT
S004
START WRITING OF UNIQUE ID BY MAKING WRITING REFERENCE CLOCK TO BE N TIMES THAT OF THE CONVENTIONAL ONE
S0051
IS RECORDING TERMINATED?
S006
NO
YES
TERMINATE RECORDING PROCESS
S007

FIG. 11

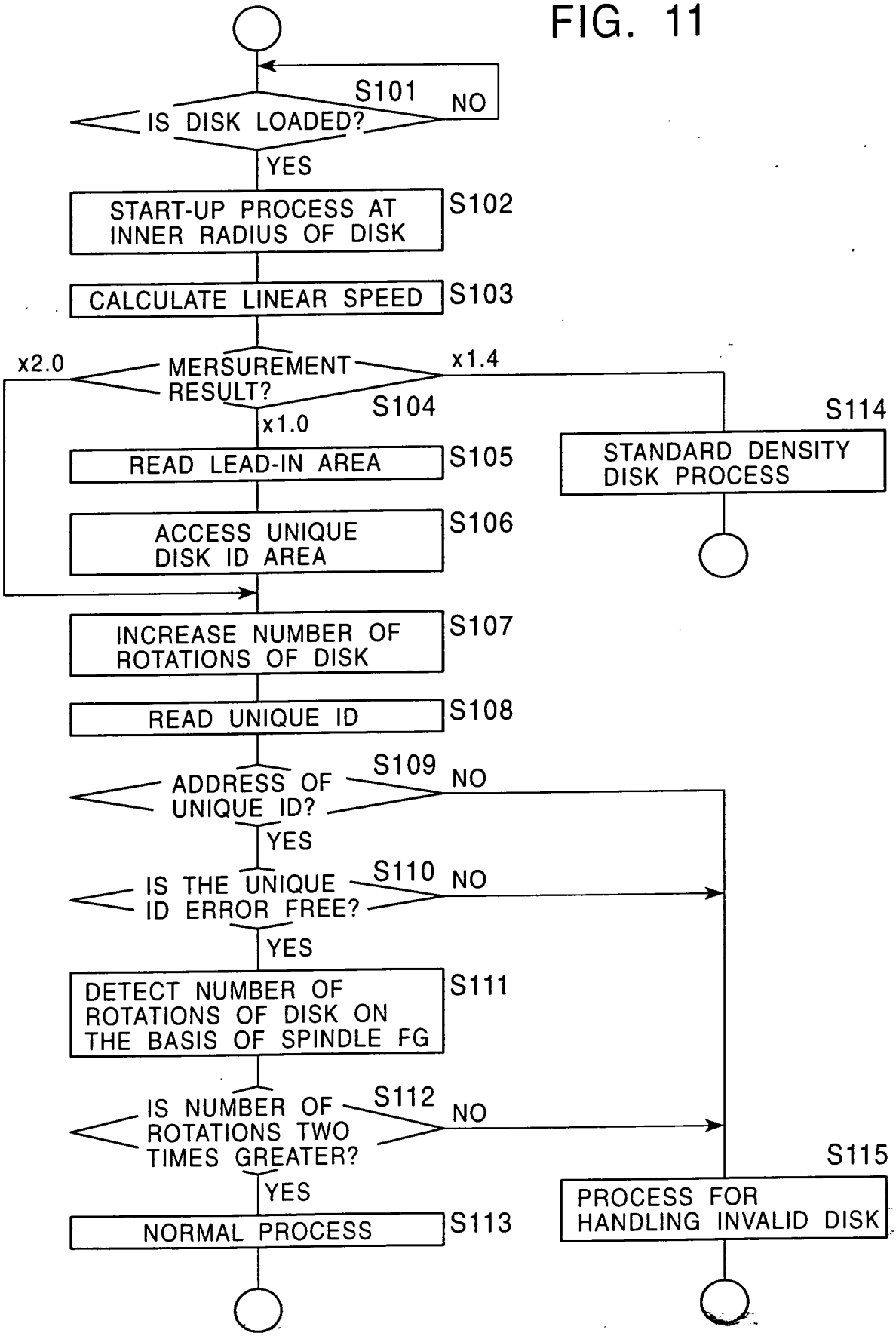
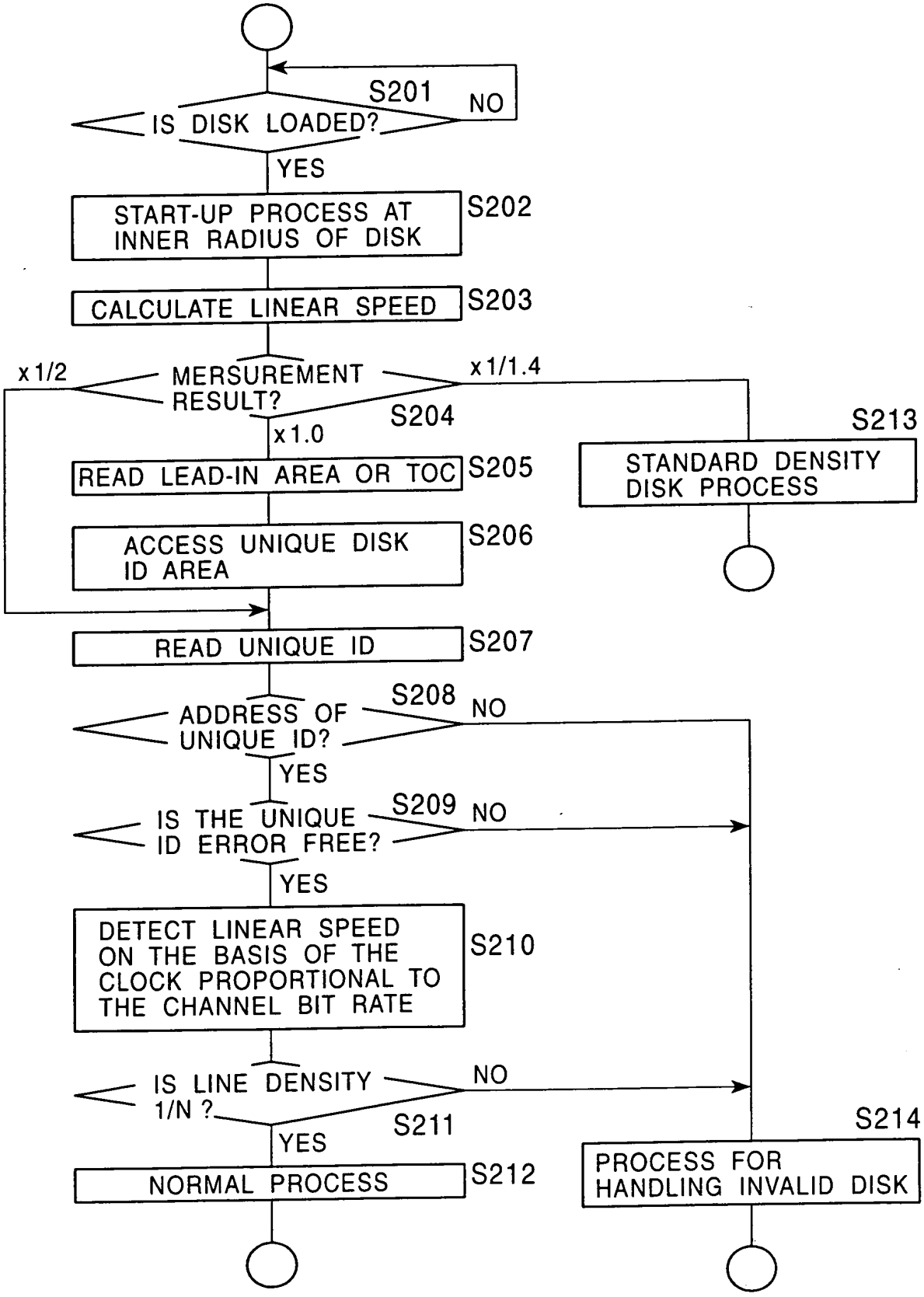

S101
IS DISK LOADED?
NO
YES
START-UP PROCESS AT INNER RADIUS OF DISK
S102
CALCULATE LINEAR SPEED
S103
MERSUREMENT RESULT?
S104
x2.0
x1.4
x1.0
READ LEAD-IN AREA
S105
ACCESS UNIQUE DISK ID AREA
S106
INCREASE NUMBER OF ROTATIONS OF DISK
S107
READ UNIQUE ID
S108
ADDRESS OF UNIQUE ID?
S109
NO
YES
IS THE UNIQUE ID ERROR FREE?
S110
NO
YES
DETECT NUMBER OF ROTATIONS OF DISK ON THE BASIS OF SPINDLE FG
S111
IS NUMBER OF ROTATIONS TWO TIMES GREATER?
S112
NO
YES
NORMAL PROCESS
S113
STANDARD DENSITY DISK PROCESS
S114
PROCESS FOR HANDLING INVALID DISK
S115

FIG. 12


S201
IS DISK LOADED?
NO
YES
START-UP PROCESS AT INNER RADIUS OF DISK
S202
CALCULATE LINEAR SPEED
S203
MERSUREMENT RESULT?
S204
x 1/2
x 1.0
x 1/1.4
READ LEAD-IN AREA OR TOC
S205
ACCESS UNIQUE DISK ID AREA
S206
STANDARD DENSITY DISK PROCESS
S213
READ UNIQUE ID
S207
ADDRESS OF UNIQUE ID?
S208
NO
YES
IS THE UNIQUE ID ERROR FREE?
S209
NO
YES
DETECT LINEAR SPEED ON THE BASIS OF THE CLOCK PROPORTIONAL TO THE CHANNEL BIT RATE
S210
IS LINE DENSITY 1/N ?
NO
S211
YES
NORMAL PROCESS
S212
PROCESS FOR HANDLING INVALID DISK
S214